

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

|   |  |  |  |   |     |        |             |  |         |               |          |            |     |  |
|---|--|--|--|---|-----|--------|-------------|--|---------|---------------|----------|------------|-----|--|
| To:<br><br>BAIN SMITH, Timothy<br>RAWORTH MOSS & COOK<br>Raworth House<br>36 Sydenham Road<br>Surrey CR0 2EF<br>GRANDE BRETAGNE |  | <table border="1"> <tr> <td>FILE</td> <td rowspan="2">TBS</td> </tr> <tr> <td>ACTION</td> </tr> <tr> <td colspan="2">17 SEP 2004</td> </tr> <tr> <td>RECORDS</td> <td>DIARY (61142)</td> </tr> <tr> <td>ACCOUNTS</td> <td>PROGRESSOR</td> </tr> </table> |  | FILE  | TBS | ACTION | 17 SEP 2004 |  | RECORDS | DIARY (61142) | ACCOUNTS | PROGRESSOR | PCT |  |
| FILE  | TBS  |  |  |   |     |        |             |  |         |               |          |            |     |  |
| ACTION  |  |  |  |   |     |        |             |  |         |               |          |            |     |  |
| 17 SEP 2004   |  |  |  |   |     |        |             |  |         |               |          |            |     |  |
| RECORDS   | DIARY (61142)  |  |  |   |     |        |             |  |         |               |          |            |     |  |
| ACCOUNTS  | PROGRESSOR   |  |  |   |     |        |             |  |         |               |          |            |     |  |
|   |  |  |  | WRITTEN OPINION<br>(PCT Rule 66)                    |     |        |             |  |         |               |          |            |     |  |
|   |  | Date of mailing<br>(day/month/year)  |  | 15.09.2004  |     |        |             |  |         |               |          |            |     |  |
| Applicant's or agent's file reference<br>TBS/37402WOP   |  | REPLY DUE  |  | within 3 month(s)<br>from the above date of mailing |     |        |             |  |         |               |          |            |     |  |
| International application No.<br>PCT/GB 03/04470  | International filing date (day/month/year)<br>14.10.2003 | Priority date (day/month/year)<br>14.10.2002   |  |   |     |        |             |  |         |               |          |            |     |  |
| International Patent Classification (IPC) or both national classification and IPC<br>F16C29/00                                  |  |  |  |   |     |        |             |  |         |               |          |            |     |  |
| Applicant<br>PIKE, Anthony Bruce  |  |  |  |   |     |        |             |  |         |               |          |            |     |  |


- This written opinion is the **first** drawn up by this International Preliminary Examining Authority.
- This opinion contains indications relating to the following items:
  - ☒ Basis of the opinion
  - ☐ Priority
  - ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - ☐ Lack of unity of invention
  - ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - ☐ Certain documents cited
  - ☐ Certain defects in the international application
  - ☐ Certain observations on the international application
- The applicant is hereby invited to reply to this opinion.
 

**When?** See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

**How?** By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

**Also:** For an additional opportunity to submit amendments, see Rule 66.4.  
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.  
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
- The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 14.02.2005

|   |  |  |  |
|---|--|--|--|
| Name and mailing address of the international preliminary examining authority:  |  | Authorized Officer   |  |
|  European Patent Office<br>D-80298 Munich<br>Tel. +49 89 2399 - 0 Tx: 523656 epmu d<br>Fax: +49 89 2399 - 4465 |  | De Jongh, C<br>Formalities officer (incl. extension of time limits)<br>Häyrynen, N<br>Telephone No. +49 89 2399-5970 |  |

## I. Basis of the opinion

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

## Description, Pages

1-8 as originally filed

## Claims, Numbers

1-10 as originally filed

## Drawings, Sheets

1/8-8/8 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☒ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

see separate sheet

6. Additional observations, if necessary:

**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

|                               |        |   |
|-------------------------------|--------|---|
| Novelty (N)                   | Claims |   |
| Inventive step (IS)           | Claims | 1 |
| Industrial applicability (IA) | Claims |   |

**2. Citations and explanations****see separate sheet**

**With Respect to Item I, Point 5 (amendments)**

1. The amendments filed with the letter dated 12 May 2004 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 34(2)(b) PCT.
2. In claim 1 the following features of claim 1 as originally filed have been omitted:
  - a) each matrix when flat having its spheres mounted for rotation in substantially a single planar or at least part spherical plane,
  - b) the plane of one matrix being parallel to that of the other matrix.
3. No basis for the omission of features a) and b) can be found in the application as originally filed. On the contrary features a) and b), ie. the provision of spheres in two single planes which are parallel to each other, ie. two layers of spheres in parallel, appears essential for the function of the invention in the light of the technical problem which it seeks to solve.  
It is noted that the expression "plane" in the application includes planar as well as curved planes (cf. claim 7), ie. includes cylindrical planes (curved in one direction) as well as spherical planes (curved in two directions).  
The omissions made to claim 1 result in the application being amended in such a way that it contains subject-matter which extends beyond the content of the application as filed, contrary to Article 34(2)(b) PCT.
4. Further the applicant has introduced the following features in new claim 1:
  - c) the spheres of each <sup>one</sup> matrix project beyond the frame, *from one side of the frame and*
  - d) the spheres of each matrix are constrained to be retained in the same *in the drawings* relative positions with respect to the frame during the counter-rotation.
5. Features c) and d) are clearly disclosed in e.g. figures 2 and 7.  
However, in the embodiments of figures 10 to 12 the frame is attached to one of two relatively moving objects. The layer of counter-rotating spheres on the fixed side do **not** project from the frame (e.g. in figure 10 spheres 89 in matrix 90).  
These embodiments - which function in a way similar to conventional ball conveyors - do not fall under the scope of new claim 1.  
As a consequence claims 8 and 9 which refer to an attached respectively a fitted frame can not be combined with present claim 1. Such combinations would also contravene the requirements of Article 34(2)(b) PCT.

**With Respect to Item V (reasoned statement)**

6. In view of the above objections and comments it is at present not practicable to provide a full reasoned statement with respect to novelty and inventive step. However, the following preliminary statements are given to expedite the procedure.
7. The presence of claims 8 and 9 and the embodiments of figures 10 to 12 also casts doubt on the protection sought (cf. point 5 above). Accordingly if claim 1 should also embrace these embodiments, whereby the spheres only project on one side of the frame, than such a claim would not be inventive in view of conventional conveyor type bearings as e.g. known from document US 4 860 875 A (D1). *Lowenbergs*
8. Independent claim 10 refers to the drawings and accordingly does not comply with the requirements of Rule 6.2(a) PCT.
9. Further the following points are noted with respect to clarity of features c) and d) mentioned under point 4 above (cf. Article 6 PCT):
  - It appears expedient to state in feature c) that the spheres of one matrix project from one side of the frame and the (counter-rotating) spheres project from the opposite side of the frame,
  - It appears that the word "counter-" in feature d) should be suppressed because the feature relates to all spheres and not only the counter-rotating spheres.

**Further Prosecution:**

10. The applicant is invited to file new claims which take account of the above objections and comments. The subject-matter of a clarified claim, whereby the omitted features have been reinstated, appears to be new and inventive with respect to the documents cited in the search report. Claims 2 to 7 could be retained as dependent claims of such a new claim 1.
11. The new independent claim will have to be worded in the two-part form as prescribed by Rule 6.3(b) PCT starting from document US 2 192 821 (D2), which in view of the application as a whole and present claim 1 is considered to represent the most relevant state of the art.  
This document D2 essentially discloses (cf. page 1, right column, line 8 to page 2, left column, line 42 and figure 4) a bearing comprising:
  - a frame (1), and
  - two layers of a plurality of spheres (3) (as well as rollers) in respective parallel single planes, whereby
  - the spheres (3) of one plane project beyond the frame (1) on one side of the frame and the spheres of the other plane project beyond the frame on the opposite side of the frame,
  - the spheres (3) are constrained to be retained in the same relative positions with respect to the frame during rotation (cf. wires or rods 4).
12. The invention differs from the bearing disclosed in document D2 in that:
  - the bearing comprises two matrices **retaining** a plurality of spheres, each having its spheres mounted for rotation in substantially a single plane,
  - the matrices are at least partly surrounded by the frame,
  - the spheres of one matrix are located so as to lie at least mostly against the spheres of the other matrix so that rotation of the spheres of one matrix results in counter-rotation of the spheres of the other matrix.
13. The description will have to be adapted to the new claims (Rule 5.1(a)(iii) PCT), in particular in view of the embodiments of figures 10 to 12 which fall outside the scope of claim 1 (cf. points 5 and 7 above). Further the above mentioned document D2 should in addition be indicated and briefly discussed in the description (Rule 5.1(a)(ii) PCT).

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